WHAT IS CLAIMED IS:

- 1. An array comprising a substrate and an array of MHC molecules complexed with antigen-derived peptides immobilized in spatially-distinct areas on the substrate.
- 2. The array of claim 1, wherein the MHC molecules in all of the spatially-distinct areas are the same.
- 3. The array of claim 1, wherein the spatially-distinct areas are surrounded by a hydrophobic barrier.
- 4. The array of claim 1, wherein the spatially-distinct areas are each surrounded by a hydrophobic barrier.
- 5. The array of claim 1, wherein the array comprises at least about 10, 50, or 100 different MHC-peptide complexes.
- 6. The array of claim 1, wherein the substrate is optically transparent.
- 7. The array of claim 1, wherein the substrate comprises glass, quartz, polystyrene, polycarbonate, polypropylene, polymethacrylate, or silicon.
- 8. The array of claim 1, wherein the substrate is coated with gold, biotin streptavidin, or another molecule used to immobilize the MHC molecules.
- 9. The array of claim 1, wherein the MHC-peptide complexes are immobilized on the substrate via the MHC molecule, which is immobilized via direct adsorption, peptide linkers, biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.
- 10. The array of claim 1, wherein the MHC-peptide complexes are immobilized on the substrate via the antigen-derived peptide, which is immobilized via direct adsorption; peptide linkers; biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.
- 11. An array comprising a substrate and an array of MHC molecules complexed with antigen-derived peptides and costimulatory molecules immobilized in spatially-distinct areas on the substrate.

- 12. The array of claim 11, wherein the costimulatory molecules are selected from the group consisting of costimulatory antibodies and costimulatory agents.
- 13. The array of claim 12, wherein the costimulatory antibodies bind specifically to one or more of CD2, CD11a, CD28, or CD49d.
- 14. The array of claim 11, wherein the costimulatory agent is B7-1, B7-2, ICOSL, B7-H1, B7-DC, B7-H3, B7-H4, LFA-3, ICAM-1, or ICAM-2.
- 15. The array of claim 11, wherein the array comprises at least about 10, 50, or 100 different MHC-peptide complexes.
- 16. The array of claim 11, wherein the MHC molecules comprise Class I MHC molecules, Class II MHC molecules, or Class I and Class II MHC molecules.
- 17. The array of claim 11, wherein the MHC-peptide complexes are immobilized on the substrate via the MHC molecule, which is immobilized via direct adsorption, peptide linkers, biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.
- 18. The array of claim 11, wherein the MHC-peptide complexes are immobilized on the substrate via the antigen-derived peptide, which is immobilized via direct adsorption; peptide linkers; biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.
- 19. An array comprising a substrate and an array of MHC molecules complexed with antigen-derived peptides, and anti-factor antibodies specific for secreted factors, immobilized in spatially-distinct areas on the substrate.
- 20. The array of claim 19, wherein the immobilized anti-factor antibodies bind specifically to one or more of IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, interferon-gamma (IFN-γ), tumor necrosis factor alpha (TNF-α), tumor necrosis factor beta (TNF-β), GM-CSF, oncostatin M (OSM), macrophage migration inhibitory factor (MIF), TNF-Related Apoptosis Inducing Ligand (TRAIL), 4-1BB ligand (4-1BBL), or alpha-defensin.
- 21. The array of claim 18, wherein the array comprises at least about 10, 50, or 100 different MHC-peptide complexes.

- 22. The array of claim 18, wherein the MHC molecules comprise Class I MHC molecules, Class II MHC molecules, or Class I and Class II MHC molecules.
- 23. The array of claim 18, wherein the MHC-peptide complexes are immobilized on the substrate via the MHC molecule, which is immobilized via direct adsorption, peptide linkers, biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.
- 24. The array of claim 18, wherein the MHC-peptide complexes are immobilized on the substrate via the antigen-derived peptide, which is immobilized via direct adsorption; peptide linkers; biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.
- 25. The array of claim 11, further comprising anti-factor antibodies specific for secreted factors immobilized in spatially-distinct areas on the substrate.
- 26. A method for identifying a T cell epitope, the method comprising:
 providing an array comprising a substrate and an array of MHC molecules complexed with antigen-derived peptides immobilized in spatially-distinct areas on the substrate;
 contacting the array with a sample comprising T cells;
 detecting a T cell interaction with an MHC-peptide complex; and
 identifying the T cell epitope based on the identity of the MHC-peptide complex.
- 27. The method of claim 26, wherein the interaction is detected by detecting activation of T cells by one or more of factor secretion, expression of an activation marker, or an intracellular signal.
- 28. The method of claim 27, wherein the intracellular signal is calcium flux.
- 29. The method of claim 27, wherein the activation marker is CD3, CD4, CD8, Cd11a, CD25, CD27, CD28, CD44, CD49e, CD62L, CD69, CD71, CD95, CD152, or Ly6A.
- 30. The method of claim 27, wherein the secreted factor is IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, interferon-gamma, tumor necrosis factor alpha, TNF-b, GM-CSF, oncostatin M, macrophage migration inhibitory factor, TNF-Related Apoptosis Inducing Ligand, 4-1BB ligand, α-defensin, or CD40 ligand.

- 31. The method of claim 26, wherein the interaction is detected by detecting expression of CD40 ligand, CD30 ligand, CD27 ligand, or Fas ligand.
- 32. The method of claim 26, wherein the array further comprises immobilized anti-factor antibodies, and factor secretion is detected by detecting binding of a factor to an immobilized anti-factor antibody.
- 33. The method of claim 32, wherein the factor is IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, interferon-gamma, tumor necrosis factor alpha, TNF-b, GM-CSF, oncostatin M, macrophage migration inhibitory factor, TNF-Related Apoptosis Inducing Ligand, 4-1BB ligand, or α-defensin.
- 34. A method of making an array, the method comprising providing a substrate, and immobilizing MHC molecules complexed with antigen-derived peptides in spatially-distinct areas on the substrate.
- 35. The method of claim 34, wherein the MHC molecules in all of the spatially-distinct areas are the same.
- 36. The method of claim 34, further comprising surrounding the spatially-distinct areas with a hydrophobic barrier.
- 37. The method of claim 34, further comprising surrounding each one of the spatially-distinct areas with a hydrophobic barrier.
- 38. The method of claim 34, wherein the array comprises at least about 10, 50, or 100 different MHC-peptide complexes.
- 39. The method of claim 34, wherein the MHC molecules comprise Class I MHC molecules, Class II MHC molecules, or Class I and Class II MHC molecules.
- 40. The method of claim 34, wherein the substrate is optically transparent.
- 41. The method of claim 34, wherein the substrate comprises glass, quartz, polystyrene, polycarbonate, polypropylene, polymethacrylate, or silicon.
- 42. The method of claim 34, wherein the substrate is coated with gold, biotin streptavidin, or another molecule used to immobilize the MHC molecules.

- 43. The method of claim 34, wherein the MHC-peptide complexes are immobilized on the substrate via the MHC molecule, which is immobilized via direct adsorption, peptide linkers, biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.
- 44. The method of claim 34, wherein the MHC-peptide complexes are immobilized on the substrate via the antigen-derived peptide, which is immobilized via direct adsorption; peptide linkers; biotin-streptavidin; cysteine attachment; amine attachment; or metal chelate interaction.
- 45. The method of claim 34, further comprising immobilizing costimulatory molecules on the substrate.
- 46. The method of claim 45, wherein the costimulatory molecules are selected from the group consisting of costimulatory antibodies and costimulatory agents.
- 47. The method of claim 46, wherein the costimulatory antibodies are one or more of anti-CD2, anti-CD11a, anti-CD28, or anti-CD49d.
- 48. The method of claim 46, wherein the costimulatory agent is B7-1, B7-2, ICOSL, B7-H1, B7-DC, B7-H3, B7-H4, LFA-3, ICAM-1, or ICAM-2.
- 49. The method of claim 34, further comprising immobilizing anti-factor antibodies specific for secreted factors on the substrate.
- 50. The method of claim 49, wherein the immobilized anti-factor antibodies comprise at least about one of antibodies specific for IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, IFN-γ, TNF-α, TNF-β, GM-CSF, oncostatin M, macrophage migration inhibitory factor, TNF-Related Apoptosis Inducing Ligand, 4-1BB ligand, or alphadefensin.
- 51. The method of claim 45, further comprising immobilizing anti-factor antibodies specific for secreted factors on the substrate.
- 52. The method of claim 51, wherein the immobilized anti-factor antibodies comprise at least about one of antibodies specific for IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12, IL-13, IL-16, IFN-γ, TNF-α, TNF-β, GM-CSF, oncostatin M, macrophage migration

inhibitory factor, TNF-Related Apoptosis Inducing Ligand, 4-1BB ligand, or alphadefensin.